

thinking. I had hoped to learn why Cronquist did not accept the recent work by Dahlgren and his colleagues (Dahlgren et al. 1985) on the taxonomy of the Liliaceae sensu lato, but I did not gain new insight. Volume I concludes with James Reveal's overview of flowering plant families (Chapter 15). Chapter 15 subsequently is followed by the very useful Appendix 15.1, a table outlining the taxonomy of the flowering plants according to the Cronquist system as adopted by the *Flora of North America*. The final appendix, Appendix 15.2, provides a table illustrating the concordance of family names accepted by the major systems of flowering plant classification systems.

As is customary to note, there are some distractions in the volume, but they are truly minor. Some, for example, might object to the large-size format and the hefty nature of the volumes. These are not strictly field books, but neither do I abuse my floras. For example, I would not backpack into the Sierra with a single *FNA* volume in my pack, but I will carefully stash the *FNA* in the back of my car when travelling to Montana collecting *Calochortus*.

Others may think that Volume I is unnecessary to have, in that it does not contain any diagnostic keys. This is far from true, as this text provides critical background and synthesis for understanding the philosophy, botanical traditions and assumptions that guide the development of the *Flora of North America*. As stated so eloquently by Reveal and Pringle in Chapter 8: "Most who pick up this and the subsequent volumes will find the history of systematics and floristics on every page, for each plant name has a story to tell. Those who look into that story will find wonderful rewards and an even greater appreciation of systematics" (192). I would add that the history of systematics and floristics of North America provided in Volume I are essential to the understanding and appreciation of each page of this botanical opus.

My parents maintained an extraordinary library in their home, full of books primarily on world geography and art history. These oversized books were kept on the lower shelves, mostly because their size and weight dictated such a place. As a child I spent hours lying on the floor, perusing their books to gain some extra insight into my parents' personalities, especially as to what gave them great joy and why they were so proud to be a part of humanity. I shall do likewise, and keep these volumes of the *Flora of North America* (and those to come) on the lower shelves of my library so that my children will have the same unspoken opportunities as I.

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A Natural History of California. (California Natural History Guides: 56). By ALLAN A. SCHOENHERR. 1992. University of California Press, Berkeley and Los Angeles. xi + 772 pages. \$38.00, ISBN 0-520-06921-8 (hardcover).

Allan A. Schoenherr, Professor of Ecology at Fullerton College for more than thirty years, avid traveler, and active advocate of rational environmental policy has prepared this splendid text that will enable all readers to quickly acquire substantive insight

into the ecology and natural history of all of California, or simply their favorite regions.

Mr. Schoenherr's brief introduction to California's natural regions apprises the reader as to the scope and organization of the book. A condensed, but lucid review of basic ecology follows, encompassing concepts of ecosystem structure, complexity and stability, flow of matter and energy, laws of thermodynamics, nutrient cycling, and trophic relationships. The author continues with considerable discourse on weather and climate, as influenced by latitude, continental location and local topography, and classifications of biotic communities. Basic geology is discussed, emphasizing the complexity of California's landscapes. The relationships of geology, soils topography and climate are discussed in the context of the evolution of biotic regions and consequent high diversity and endemism found in California. The introductory chapters provide a solid foundation for understanding the remaining chapters, and will be enjoyed by all, regardless of their prior knowledge or experience.

The heart of this book is organized around geographic regions, "using as a starting point the geomorphic provinces described by the California Division of Mines and Geology." The Sierra Nevada, for which Mr. Schoenherr displays copious intimate knowledge, and reverence, is discussed extensively in all of its aspects including geology, climate, and the diverse plants and animals of its several biotic zones. Although the author states that the treatment of plants and animals is in no way intended to be exhaustive, there is no shortage of information here. Conspicuous, interesting and distinctive species and their ecological roles are emphasized. A separate chapter is devoted to subalpine and alpine environments of Mountaintops of the Sierra Nevada, Klamath province Cascade Ranges, Great Basin, and the Transverse and Peninsular Ranges, wherein Mr. Schoenherr examines the insular nature of mountaintops, and then compares and contrasts the floral and faunal components of these isolated regions. Again, the author demonstrates intimate familiarity with the places he discusses.

In the chapter entitled Pacific Northwest Mountains, the Klamath Mountains and Cascade Ranges are treated in the same format as that for the Sierra Nevada. Similarly, the chapters following in order include: Coast Ranges; Cismontane Southern California (Transverse and Peninsular Ranges); Deserts (Great Basin, Mojave, Colorado); and, Great Central Valley. As with the introductory chapters, everyone will benefit from reading each chapter, regardless of their level of familiarity or fondness for a particular biotic region. The reason for this is that not only does Mr. Schoenherr develop a thorough overview of each region, but each chapter also contains little-known, curious, interesting, enigmatic, anecdotal, insightful, and sometimes inciteful information. Each chapter is supplemented with a listing of selected references.

Finally, two chapters are devoted to the ecology and natural history of the diverse habitats of Inland Waters and the Coastline. These chapters are a bonus for those readers whose biological experience is primarily terrestrial, especially since the level of treatment is nearly as extensive as that of the previous chapters. Mr. Schoenherr closes the last chapter with a section on California's Islands, therefore, everyone will be satisfied and no biotic regions and habitats are left untouched. In an Epilogue, Mr. Schoenherr deplores the failure of many Californians to appreciate the value and fragility of natural systems, and dedicates his book to a changing attitude toward protecting and restoring California's rich natural heritage.

The book contains 371 photographic figures and line drawings to illustrate important features and concepts. The reader may notice that many of the photographs as reproduced as a little too dark. Although this is not a major detraction, the author indicates that this will be corrected in a second printing. The sixteen color plates, each with multiple figures are top-quality. A few minor typographical and spelling errors were noted. Mr. Schoenherr utilizes standardized common and scientific names almost universally, however, some persons may take exception to certain nomenclature for plants and animals used in this book. If one will forgive a few slight nomenclatural deviations, then they will have no trouble assimilating the more important aspects of this book. Yet other readers might suggest that the scientific usefulness

of the book is diminished by the absence of literature citations in the body of the text. Those readers should consider that the book, already two-inches thick, would be considerably thicker, had this been done. Some readers may object to the occasional sprinkling of Mr. Schoenherr's philosophy and environmental ethic, but probably not those readers genuinely interested in California's natural environments.

Mr. Schoenherr has admirably fulfilled his objective to familiarize readers with this special place called California. It is apparent that this book was an immense undertaking, and no other single reference compares to it in terms of volume and informational content. After reading it, a person will be able to describe the climate, rocks, soil, plants, animals and biogeography of any area of California, and be able to explain how things got there and the ways in which they relate to each other. This book will foster appreciation for California's natural diversity, much of which is threatened. The breadth and depth of Mr. Schoenherr's writing makes this book essential reading for those of all interests and avocations, including experienced biologists, environmental professionals, students and naturalists.

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Interface Between Ecology and Land Development in California. Edited by JON E. KEELEY. 1993. Southern California Academy of Sciences, Los Angeles. 297 pages. \$28, ISBN 0-9626305-3-5 (hardcover).

In the preface to this book, Jon Keeley comments that "The interface between ecology and land development is a battleground of opposing interests and values, with factions fighting to ensure their own version of quality of life." The symposium from which this volume arose was convened to provide a forum which would bring together researchers, policy makers, conservationists and other interested parties and which would explore strategies to deal with the inherent battle between ecology and development. The resulting proceedings consists of 49 papers on a wide variety of topics, grouped under headings "Biodiversity and conservation," "Land management and land stewardship," "Wildlife and corridors," and "Mitigation and community restoration."

The book starts off with a keynote address on "Ecology and species extinction: a global perspective," by Peter Raven, which provides one of the most coherently-argued and well written essays on the value of biodiversity and the problems facing it that I have come across. Raven firmly asserts that the root cause of the current biodiversity crisis is the rapidly increasing human population, but also points to the failure of the United States to assess its own population increase or its per capita consumption. These problems are central to the question of development in California.

The remaining papers are written by people from a variety of backgrounds: academic biologists, consultants, state and local government personnel and representatives of a variety of conservation interest and lobby groups. Given such a range of backgrounds, it is inevitable that individual contributions will push particular barrows, and that a certain level of distrust and/or cynicism will come through. However, the overall tenor of the volume indicates the need for the various groups to work together if anything of lasting value is to be achieved. In particular, there is a strong call for scientists to become more involved in policy and advocacy. Scientists traditionally sit on the fence when faced with contentious issues, partly out of self-preservation, but also because they are reluctant to make "bottom line" statements in the face of complexity and uncertainty. However, there is a growing recognition that planning and management decisions are going to be made anyway, and it is better that they are made with some scientific input instead of in a knowledge vacuum. Dan Silver summed the situation up nicely: "Activism and advocacy in politics and conservation are simply a necessity, especially for scientists. If we are to save what's left of our nature in southern California, nobody will do it for us."